

# Master thesis in Experimental Physics: Implementation of an interferometric detection system at picometer level (f/d/m, available immediately)

The **CANNEX** group in the research unit Neutron and Quantum Physics at the **Atominstiut** of TU Wien is offering a **Master position** in experimental physics for the worldwide only parallel plate force metrology setup CANNEX.

## What we offer:

- ▶ You can take part in an internationally unique experiment searching for dark matter, dark energy, (quantum) gravity and other new physics.
- ▶ A thesis contributing to active research with the perspective to do publications already on master level.
- ▶ International team of experts
- ▶ Opportunities to learn a variety of different skills, and forge first scientific contacts helping to find a PhD position later.
- ▶ Your own real-world (sub-)project.

## What you should bring:

- ▶ Willingness to start immediately.
- ▶ An open, friendly, and team-oriented mindset. You are a person one can rely on.
- ▶ Willingness and motivation to learn quickly both independently and in an international team, adapt to challenging situations, and to go the extra mile it takes to have success.
- ▶ Nice to have: programming skills (Python, Mathematica)
- ▶ A basic understanding of lasers and interferometers
- ▶ Motivation to learn about new interferometric techniques, error analysis, numerical computation, experimental control software, and of course: to work in the lab.

**Our credo is: You come to learn, not because you already know it all!**

## Your tasks:

- ▶ Implement and set into operation a highly accurate system of 5 fiber interferometers
- ▶ Develop calibration and operation procedures for metrological measurements with minimized error and maximized accuracy
- ▶ Perform actual characterization, calibration, and test measurements with pm resolution
- ▶ Write control and evaluation software
- ▶ Write your Master thesis.

**Institution:** TU WIEN is the largest institution for higher education and research focused on science and technology in Austria and has 4.800 employees and 29.000 students. The research unit Neutron and Quantum Physics at Atominstiut in Vienna operates several large experiments including CANNEX, qBounce, PERKEO, and is part of several international collaborations.

**Application procedure:** For further information contact Dr. René Sedmik (rene.sedmik@tuwien.ac.at). Being committed to enhance diversity, we particularly encourage female students to apply. Application **deadline 15 September. 2024.**

